

REMARKS

Claims 1-14 are pending in the application, of which claims 1 and 12-14 are independent. In an Official Action of September 16, 2003, the Examiner objected to the drawings. The Examiner rejected claims 1-14, under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,377,946 B1 ("*Okamoto et al.*") in view of U.S. Patent No. 5,873,081 ("*Harel et al.*"). Applicants address each of the objections and rejections in turn.

I. Objection to the Drawings

The Examiner objected to the drawings based on minor informalities. Specifically, the Draftsperson noted that corrected Figures 10, 18, and 25 have been submitted on inappropriately sized pages. The Applicants have herein submitted a drawing amendment for the Examiner's approval. The Applicants will present formal drawings upon indication by the Examiner of his acceptance of the proposed changes.

No new matter has been added by submission of these replacement drawings.

II. Rejection of Claims 1-14 under 35 U.S.C. § 103(a)

The Examiner rejected claims 1-14 under 35 U.S.C. § 103(a) as being unpatentable over *Okamoto et al.* in view of *Harel et al.* Claims 1 and 12-14 have been amended herein to more clearly recite the Applicants' invention. No new matter has been added by these amendments. The Applicants respectfully traverse the Examiner's rejection.

Amended claim 1 patentably distinguishes the present invention from *Okamoto et al.* in view of *Harel et al.* in that it recites, for example, a structured document search

method for searching a structured document database, comprising accepting a search request in the form of a logical structured document, analyzing the accepted search request for generating a search graph, generating a search plan for a hierarchical structure possessed by a searched document, in which a search processing procedure for said structured document database is developed from said search graph, by using index information concerning actual data in said structured document database; and acquiring search results satisfying said search request by executing said search plan.

Amended claim 12 patentably distinguishes the present invention from *Okamoto et al.* in view of *Harel et al.* in that it recites, for example, a structured document search apparatus for searching based on a search request including a document logical structure with respect to a structured document database having the logical structure, comprising a search graph generating section configured to generate a search graph including the document structure information based on said search request; a search plan generating section configured to generate a search plan for a hierarchical structure possessed by a searched document, in which a search processing procedure for said structured document database is developed from said search graph, by using index information concerning the actual data in said structured document database; and a search executing section configured to acquire search results satisfying said search request by executing said search plan.

Amended claim 13 patentably distinguishes the present invention from *Okamoto et al.* in view of *Harel et al.* in that it recites, for example, a computer readable recording medium recording a program for searching based on a search request including a document logical structure with respect to a structured document database having the logical structure, wherein the program comprises the steps of instruction section

configured to cause a computer to generate a search graph including the document structure information based on said search request; instruction section configured to cause a computer to generate a search plan for a hierarchical structure possessed by a searched document, in which a search processing procedure for said structured document database is developed from said search graph, by using index information concerning the actual data in said structured document database; and instruction section configured to cause a computer to acquire search results satisfying said search request, by executing said search plan taking said structured document database as search object.

Amended claim 14 patentably distinguishes the present invention from *Okamoto et al.* in view of *Harel et al.* in that it recites, for example, a structured document search system comprising a logical structured document database containing an actual data; an index information storing section configured to store index information concerning the actual data in said logical structured document database; a search request accepting section configured to accept a search request from outside; a search graph generating section configured to generate a search graph, based on said search request; a search plan generating section configured to generate a search plan for a hierarchical structure possessed by a searched document, in which a search processing procedure for said structured document database is developed from said search graph, by using index information concerning the actual data in said logical structured document database; and a search plan executing section configured to acquire search results satisfying said search request by executing said search plan.

In contrast to claims 1 and 12-14, *Okamoto et al.* discloses a document search system that utilizes a document registration subsystem. (Figs. 1-2; col. 9, lines 59-65;

col. 10, lines 47-54.) Specifically, documents are registered in the system and placed in a structured index so that they can be retrieved at a later time. (Fig. 5; col. 14, lines 33-52.) As admitted by the Examiner, *Okamoto et al.* fails to disclose or suggest generating a search plan. Additionally, *Okamoto et al.* fails to disclose or suggest generating a search plan for a hierarchical structure possessed by a searched document, in which a search processing procedure for said structured document database is developed from said search graph, by using index information concerning actual data in said structured document database. Moreover, it would not be obvious to one of ordinary skill in the art to modify *Okamoto et al.* to disclose generating a search plan for a hierarchical structure possessed by a searched document, in which a search processing procedure for said structured document database is developed from said search graph, by using index information concerning actual data in said structured document database as recited in amended claim 1 and 12-14.

Harel et al. fails to cure the defects of *Okamoto et al.* Specifically, *Harel et al.* discloses a search method that utilizes a directed acyclic graph ("DAG") representing a search query. (Figs. 2, 5; col. 3, lines 48-56.) The DAG of *Harel et al.* consists of a logical graph of source nodes in which each source node represents a search term in the query. (Fig. 5; col. 3, lines 51-53.) In addition, the DAG contains internal nodes which represent Boolean expressions. (Fig. 5; col. 3, lines 54-56.) The source nodes and internal nodes are arranged in the DAG to represent a query. (Fig. 5; col. 4, lines 6-26.) The information stored in each source node and in each internal node includes a node type, a true/false value, a query operator or Boolean expression, and a pointer to other nodes. (Col. 3, lines 60-65). *Harel et al.* does not disclose or suggest that the nodes of the DAG contain index information concerning actual data from a structured

database. In fact, the search method of *Harel et al.* is not described in relation to a structured database.

Neither *Okamoto et al.* nor *Harel et al.*, either alone or in combination disclose or suggest generating a search plan for a hierarchical structure possessed by a searched document, in which a search processing procedure for said structured document database is developed from said search graph, by using index information concerning actual data in said structured document database, as recited in amended claim 1 and similarly in amended claims 12-14. Consequently, the Applicants respectfully submit that independent claims 1 and 12-14 are patentable over *Okamoto et al.* in view of *Harel et al.*

Claims 2-11 are allowable, at least for the reasons above regarding claim 1, and by virtue of their dependency upon that claim. Accordingly, the Applicants respectfully request withdrawal of the rejection of claims 2-11.

Please grant any extension of time required to enter this preliminary amendment and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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